

place Y to which it tended before Refraction; and therefore suffered as well in the first Prism as in the second a greater Refraction than the rest of the Light, and by consequence was more Refrangible than the rest, even before its incidence on the first Prism.

Sometimes I placed a third Prism after the second, and sometimes also a fourth after the third, by all which the Image might be often refracted sideways: but the Rays which were more refracted than the rest in the first Prism were also more refracted in all the rest, and that without any Dilatation of the Image sideways: and therefore those Rays for their constancy of a greater Refraction are deservedly reputed more Refrangible.

Fig. 15. But that the meaning of this Experiment may more clearly appear, it is to be considered that the Rays which are equally Refrangible do fall upon a circle answering to the Sun's Disque. For this was proved in the third Experiment. By a circle I understand not here a perfect Geometrical Circle, but any Orbicular Figure whose length is equal to its breadth, and which, as to sense, may seem circular. Let therefore A G represent the circle which all the most Refrangible Rays propagated from the whole Disque of the Sun, would illuminate and paint upon the opposite Wall if they were alone; E L the circle which all the least Refrangible Rays would in like manner illuminate and paint if they were alone; B H, C J, D K, the circles which so many intermediate sorts of Rays would successively paint upon the Wall, if they were singly propagated from the Sun in successive Order, the rest being always intercepted; And conceive that there are other intermediate Circles without number which innumerable other intermediate sorts of Rays would successively paint upon the Wall if the Sun should successively emit every sort apart.

And

And seeing the Sun emits all these sorts at once, they must all together illuminate and paint innumerable equal circles, of all which, being according to their degrees of Refrangibility placed in order in a continual series, that oblong Spectrum P T is composed which I described in the third Experiment. Now if the Sun's circular Image Y which is made by an unrefracted beam of Light was by any dilatation of the single Rays, or by any other irregularity in the Refraction of the first Prism, converted into the Oblong Spectrum, P T: then ought every circle A G, B H, C J, &c. in that Spectrum, by the cross Refraction of the second Prism again dilating or otherwise scattering the Rays as before, to be in like manner drawn out and transformed into an Oblong Figure, and thereby the breadth of the Image P T would be now as much augmented as the length of the Image Y was before by the Refraction of the first Prism; and thus by the Refractions of both Prisms together would be formed a foursquare Figure $p \pi t l$ as I described above. Wherefore since the breadth of the Spectrum P T is not increased by the Refraction sideways, it is certain that the Rays are not split or dilated, or otherways irregularly scattered by that Refraction, but that every circle is by a regular and uniform Refraction translated entire into another place, as the circle A G by the greatest Refraction into the place ag , the circle B H by a less Refraction into the place bh , the circle C J by a Refraction still less into the place ci , and so of the rest; by which means a new Spectrum pt inclined to the former P T is in like manner composed of circles lying in a right Line; and these circles must be of the same bigness with the former, because the breadths of all the Spectrums Y, P T and pt at equal distances from the Prisms are equal.

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